

# LASCA Leaves



## Los Angeles County Department of Arboreta and Botanic Gardens

### Baldwin Bonanza VII

LIKE PREVIOUS BALDWIN BONANZAS, the seventh of these annual plant-sale fund raisers at the Los Angeles State and County Arboretum was a huge success. It attracted a record attendance, 17,575, and a record net profit, \$41,000, earmarked for the construction of the proposed Hall of Environmental Education. Nineteen hundred members of the sponsoring California Arboretum Foundation and their guests arrived for the preview party on Saturday evening, April 30th, for first chance at the inventory of rare, unusual, difficult-to-obtain, and super bargain plants that had been rapidly accumulated during the previous months. With music in the background and with a plentiful supply of refreshments and snacks prepared



*Visitors select from thousands of plants on sale at the Baldwin Bonanza. (Photographs by William Aplin)*





by volunteers headed by Marleen Quandt, the festivities on a balmy evening were enjoyed by everyone and were to serve as an indication of what was to happen the next day.

The next morning a light rain was falling in the early hours, giving rise to fears of a repeat of last year's rainy Bonanza. But twenty minutes before the nine o'clock opening the rain stopped and the sun began to break through. Shortly thereafter, the crowd surged through the gates and headed for the approximately quarter-acre, saran-covered sale site west of the Garden For All Seasons. Within a few hours five hundred miniature roses and a thousand blue hibiscus, an Arboretum introduction, disappeared along with hundreds of gallon cans of asparagus and artichokes. In two hours, five thousand pelargoniums were sold out. Orchids were particularly popular this year, including bouquets of cut cymbidium flower spikes. By the end of the day there was little left—ferns, cycads, palms, shade and fruit trees, all were carried off by as enthusiastic a crowd of plant

lovers as one might ever hope to see. Everyone who had worked to make the event a success was pleased, none more than Mrs. David Malafrente, Bonanza chairman, Mrs. Leland E. Larson, president of the Foundation, Mrs. John Llewellyn, president of Las Voluntarias, and the 280 members of Las Voluntarias who helped with the yearlong preparation and the selling.

#### Dolls at South Coast

ON THE EVENING of last June 3rd, a preview of an unusual Japanese doll and bonsai exhibit was held in the Hall of Horticulture at South Coast Botanic Garden. Present were distinguished representatives of the South Bay Japanese community, the Los Angeles County Board of Supervisors, city and state officials, and the Department of Arboreta and Botanic Gardens. The focus of the event was the display of some 300 Kime Komi dolls reflecting various aspects of ancient Japanese culture, and a collection of prize bonsai trees.

The preview was coordinated by Mr. Kay Iizuka, member of the Arboreta Board of Governors. The program began with an introduction by Mr. Iizuka, followed by welcoming remarks by Mrs. Hirofumi Uyesugi, instructor in the doll art; Francis Ching, Arboreta director; Mr. Eugene Hillman, president of the South Coast Botanic Garden Foundation; and Mrs. Randell Stoke representing the Board of Governors.

Special guests included Mrs. Ayako Ito, Vice Consul of Cultural Affairs of Japan, Los Angeles County Supervisors Kenneth Hahn and James A. Hayes and their wives. The Supervisors presented scrolls to Mrs. Uyesugi and Mr. Mikado Takehara, chairman of the bonsai exhibit. Mrs. Hahn and Mrs. Hayes were each presented with gifts of a Kime Komi doll.

#### Rubber Research Grant

LAST MARCH, the California Arboretum Foundation received a grant from the National Science Foundation for a research project aimed at increasing the yield of the rubber-bearing shrub, guayule, the work to be done at the Los Angeles State and County Arboretum. The project will be under the direction of George P. Hanson, Arboretum senior biologist and plant breeder. Dr. Hanson will serve as principal investigator assisted by other members of the Arboretum research staff plus four full-time technicians.

The grant is for \$97,600 for the first year with support for an additional two years planned. The money is provided by the NSF's Research Applied to National Needs (RANN) program, in this case reflecting government recognition of natural rubber as a strategic commodity in the U.S. economy and the desirability of developing a domestic alternative to the current and



*Kay Iizuka, Mrs. Hirofumi Uyesugi, William Gerber and Supervisor Kenneth Hahn review the Kime Komi doll preview exhibit.*



only source of natural rubber supply in Southeast Asia.

Guayule (*Parthenium argentatum*) is a semidesert shrub native to the drylands of Texas and north-central Mexico. It has been long familiar to the inhabitants of those areas who extracted rubber from the plant by chewing the leaves and branches and then made balls for games. Before and during World War II, guayule was grown and commercially harvested for its rubber content in various parts of the American Southwest; large acreages were grown in California during the 1940's. After the war, guayule culture was abandoned in favor of synthetic rubber made from petroleum which was easier to produce in large quantities. The new interest in guayule arises from economic, environmental, and practical considerations of considerable urgency today. Cited as the most important are 1) the growing demand for natural rubber for truck and aircraft tires and for the relatively recent radial tires which require substantially more natural rubber than older types; 2) the uncertainty of the current source. At present, natural rubber comes only from *Hevea brasiliensis*, a tree native to Brazil but largely wiped out in that region because of disease. It is now growing in Malaysia and Indonesia, areas subject to political manipulation by foreign nations; 3) synthetic rubber is made from petroleum, a product in increasingly short supply and potentially rising cost; 4) synthetic rubber is produced in factories using energy from fossil fuels that produce smog as a by-product; 5) guayule grows on arid land not usable for agriculture. There are thousands of acres of arid land lying idle in the American Southwest. Whether this acreage will be used for growing guayule will depend on how successful research projects are in breeding varieties that will increase the rubber yield.

The project will be divided into five main tasks: seed collection to provide a wide variety of germplasm; hybridization or crossing of existing strains to give new plant varieties; selection among the new varieties for yield potential; horticultural studies to determine cultural conditions for optimum rubber yield; and maintenance of breeding and test stock.

As a member and past president of the California Arboretum Foundation, the late Dr. Arie J. Haagen-Smit recommended that the Arboretum become involved in guayule research which led to the research grant by the National Science Foundation.

To help direct and assist in the project, an advisory committee made up of distinguished American scientists has been organized. Most of the committee members have experience with guayule dating back to the 1940's; others have been working with the plant over the past two years.

#### Spring Extravaganza

THE ANNUAL SPRING EXTRAVAGANZA, a field day designed especially for homeowners, was held at the Los Angeles State and County Arboretum last May 21 and 22. As in past years sixteen horticultural organizations participated, displaying their particular plant specialties including camellias, ferns, palms, iris, amaryllis, day lilies, roses, bonsai, epiphyllum, begonias, orchids, and ivy.

Horticultural demonstrations included talks on herbs, vegetable gardening, house plants, roses, water conservation and plant propagation. A plant clinic composed of eight plant specialists solved visitors' plant questions and problems.

Displays included the Arboretum tropical and begonia greenhouses, plant science library, research laboratory and all-volunteer garden.

The Southern California chapter of the Herb Society of America attracted interest with over twenty lectures and demonstrations involving herbs including herb facials and herbal liqueurs. Other herb demonstrations included perfume making, herbal soaps, candying of edible herbs, and herbs in French cuisine.

All in all, some 10,000 visitors took advantage of the plant information offered, gaining a greater awareness of their surroundings.



Horticultural exhibits at the Spring Extravaganza.

#### Annual Meeting

THE CALIFORNIA ARBORETUM FOUNDATION held its annual membership meeting June 21 on the lawn adjoining the Garden For All Seasons. Members gathered at 6 p.m. for a picnic supper that was followed by a short business meeting to elect officers and members of the Board of Trustees for the coming year. Mrs. Leland E. Larson was elected for a second term as president of the California Arboretum Foundation. Tours of the grounds were enjoyed by the 350 members along with guided tours of the Prehistoric and Jungle Garden and the Tropical Greenhouse, two recently developed features largely supported by the California Arboretum Foundation. The evening ended with the customary plant distribution which this year offered members a choice



of either *Callistemon* 'Red Cascade,' a small tree, or *Calothamnus quadrifidus alba*, a small shrub, both plants newly introduced by the Los Angeles State and County Arboretum.

### Fiesta de Flores

TO NO ONE'S SURPRISE, the 15th annual Fiesta de Flores at South Botanic Garden last May 14 and 15 attracted the largest crowd yet, close to 8,000 people for the two-day affair. Credit for the success goes to the entire South Coast Botanic Garden Foundation and the Fiesta committee made up of Florence Siudmak, Mary Lou Steinmetz, and Pat Box. Some of the most popular attractions included "Harnessing the Golden Chariot," a solar energy display from the office of Los Angeles County Supervisor James Hayes and the Los Angeles County Mechanical Department.

Local horticultural societies were again pleased to have the new Hall of Horticulture available for their exhibits. Taking part were the South Bay Bromeliad Associates; South Coast Rose Society; South Bay Herb Society; Vegetable Enthusiasts Group; South Coast Cac-

tus and Succulent Society; South Bay Orchid Society; South Coast Branch of the National Fuchsia Society; Bishop's Nursery of Manhattan Beach and Crest Garden Center. Two centers of attention were handcrafted items made by South Coast Botanic Garden volunteers and the plant sales tables where brisk activity in the sale of ferns, bromeliads, cactus, cymbidiums, and other plants resulted in a net profit of \$4,300, all to go for the new Administrative Center.

As always, there was a raffle for a wide range of gifts that included trips to recreation spots, paintings, binoculars, plants, a bird-watcher's guide, and a greenhouse.

### Paseo por Descanso

LAST MAY 19, the Descanso Gardens Guild offered its first "Paseo por Descanso" in which participants were offered an in-depth look into the many interesting features of Descanso Gardens. Although Guild members have conducted hundreds of tours of Descanso over the years, they had never before organized so thorough and, judging from the comments of

those who took it, so enjoyable a tour.

Reservations were made by 362 people for the event. They were greeted just inside the main entrance by Guild President Nancy Dunn who gave them a brief history of the Gardens and the Guild's role in its formation and development. Guild docent guides then led groups through the Gardens, making stops for short lectures at the Old-Fashioned Rose Garden; under a huge live oak where the Spanish and Indian history of the Gardens was recounted; and at the edge of the lake where pond ecology was discussed. The Native California Plant Section was also visited along with the Pinon Pines where the use of pinon nuts in cooking was explained. Guests were served lemonade at the Redwood rest area. Lectures continued at a chaparral area, after which the nature trail was followed down into the Camellia forest.

### Lydia Birt Williams

WITH DEEPEST REGRETS we report the loss of a longtime friend and associate last May 3rd with the death of Lydia Birt Williams following injuries received in an automobile accident a week earlier. Mrs. Williams was an enthusiastic horticulturist who learned her craft from years of experience working the soil, planting, observing and experimenting. She taught container gardening in the Department's adult education program at the Arboretum, Descanso Gardens and South Coast Botanic Garden.

### Queen Anne Frolic

Friday, September 23, 1977  
at the Los Angeles  
State and County Arboretum

A memorable evening for members of the California Arboretum Foundation and their guests.



Gift items, handcrafted by volunteers and sold at the gift shop, attract many visitors during the Fiesta de Flores.



# Vanilla: Flavor From An Orchid



IF YOU HAPPEN to visit Papantla, a small town in the north of the state of Veracruz in Mexico, you are greeted with a heavy fragrance that fills the air, comes in the car, and lingers in the clothing. It stays with you as long as you remain in the area. When you leave you can even buy it and take it along, bottled and labeled as "Extracto de Vainilla."

Papantla is the leading vanilla growing district of Mexico. Papantla vanilla is sold all over Mexico and even in some stores in Los Angeles. Its flavor is so pure and so strong that you need only one-third to one-half as much as other vanillas. It is considered to be the world's finest.

Practically the entire vanilla production in the Papantla area is carried out by the Totonac Indians. Totonacs seem to have an inherited knowledge of the conditions needed for growing and curing vanilla. According to a Totonac legend one of their goddesses, Xanath, fell in love with a Totonac but could not marry him. To be close to her lover and to benefit his people she turned herself into a flowering vanilla vine which twines around trees in the Totonac jungle and produces the vanilla beans which have made the tribe prosper.

Vanilla is a genus of the orchid family. About 50 species have been described, only three of which (*Vanilla planifolia* Andrews, *V. pompona* Schiede, and *V. tahitensis*

J. W. Moore) are of commercial importance as sources of vanilla.

The most important species is *Vanilla planifolia* Andrews, also known as *Vanilla fragrans* Ames. It is a vine that, by aerial roots, climbs to the tops of tall trees. The leaves are elliptic to lanceolate, entire, short-petioled, alternate, glabrous, thick and somewhat succulent. They are up to ten inches long and three inches wide. The flowers are greenish-yellow, occur in many-flowered clusters and have a delicate fragrance that, however, is not at all reminiscent of the fragrance of vanilla that we are accustomed to. They are approximately three inches across. Each flower has three sepals, three petals, one stamen and one pistil. The lower petal is larger, three-lobed, and is known as the lip. The stamen and pistil are united and form an organ known as the column. The fruits are narrowly cylindrical, indehiscent and contain countless tiny seeds. The species is, or at least is thought to be, indigenous to southeastern Mexico, Guatemala, British Honduras, Honduras, Nicaragua, Costa Rica, El Salvador, Panama, the West Indies, Colombia, Venezuela, Surinam, Guyana, French Guiana, Ecuador, Peru and Bolivia.

VANILLA PODS were harvested by the Aztec Indians before the discovery of America and were used after fermentation to flavor their

chocolate. The Aztecs called the pod "tlilxochitl," derived from "tlilli," meaning "black," and from "xochitl," translated as "pod."

The vanilla plant was first described and figured by Francisco Hernandez who was sent on a mission to Mexico by Philip II of Spain in 1571. Hernandez stayed in Mexico six years, became an authority on vanilla and wrote a book, "Rerum Medicarum Novae Hispaniae," which was published in Rome in 1651. In his book he named the vanilla plant *Araco aromatico*, recorded its native name, "tlilxochitl," and noted that it was held in high esteem by the Mexicans, not only for its pleasant aroma and taste, but also because of its supposed healing qualities.

The vanilla plant was brought from the West Indies to Europe in 1800, and distributed to many parts of the Old World tropics. Although several of them flowered in a few years no fruits resulted. The question was, why?

The mystery was finally solved by the Belgian botanist Charles Morren, who in 1836, obtained two crops of vanilla pods by pollinating the flowers artificially by hand. Morren attributed the failure of the plants to produce fruit in the Eastern Hemisphere to the absence of the particular insect or insects which pollinated the flowers in their native region. In the vanilla growing areas of Mexico the melipone bees and





*Vanilla planifolia.*

certain species of hummingbird not present in tropical Asia were proved to be pollinating agents.

The operation of pollinating the vanilla flowers is artificially performed with the aid of a small bamboo splinter, a sharpened match or a toothpick. The object is to move the flaplike partition (rostellum) that separates the male and female elements out of the way so that the overhanging anther can be pressed against the stigma and thus smear the pollen on it. On commercial vanilla plantations this operation is done mostly by women and children because of their nimble fingers.

A vanilla vine may bear as many as 2000 or more flowers, but only 40

or 50 blossoms are hand pollinated because too many fruits weaken and exhaust the plant. The flowering period may extend to two months or more, but each blossom lasts only one day, from early morning to late afternoon. Therefore, the pollination must be carried out early in the morning on which the flowers open.

Following fertilization the pods mature in four to nine months and are ready to be picked when they turn yellow at their tips.

**T**HE PODS have no fragrance when picked. It develops during a rather involved curing process taking several months. In Mexico, curing consists of bringing the plucked

Pods into a room where they are spread on racks for 24 hours and allowed to wilt. On the second day, they are spread on mats or blankets on a cement platform and exposed to the sun. In the afternoon they are prevented from drying too much by the mats or blankets being folded over them and at night they are put into airtight cases to sweat. During the following days they are similarly treated. If rainy days interfere with the process, an oven is used to maintain the temperature and continuity of formation of vanillin.

When the curing has been completed the pods, or the beans, as they now are known, are sorted and graded. The most desirable beans are about seven to ten inches in length, highly aromatic, dark brown, fleshy, supple, somewhat oily in appearance, shaped like a long, slim cigar and free of blemishes, mildew and insect infestation. After being sorted and graded they are tied in bundles and packed in tin containers or in boxes lined with tinfoil for export.

White, needle-shaped crystals that accumulate on the outside of the beans when they are stored after curing is vanillin. Chemically 4-hydroxy - 3 - methoxybenzaldehyde, vanillin is the compound chiefly responsible for the particular fragrance and flavor of the cured vanilla beans. The vanillin content of the beans has been found to vary according to where they are grown, from 1.5 percent in Mexico to 2.7 percent or higher in Java. The percentage of vanillin content, however, is not necessarily proportional to the quality of the beans and does not determine their ultimate value, nor are the most strongly aromatic beans always those with the highest vanillin content. The subsidiary compounds inherent in beans greatly influence the aroma of vanilla.

Most of the vanilla flavoring is marketed in the United States in the form of vanilla extract. It is obtain-



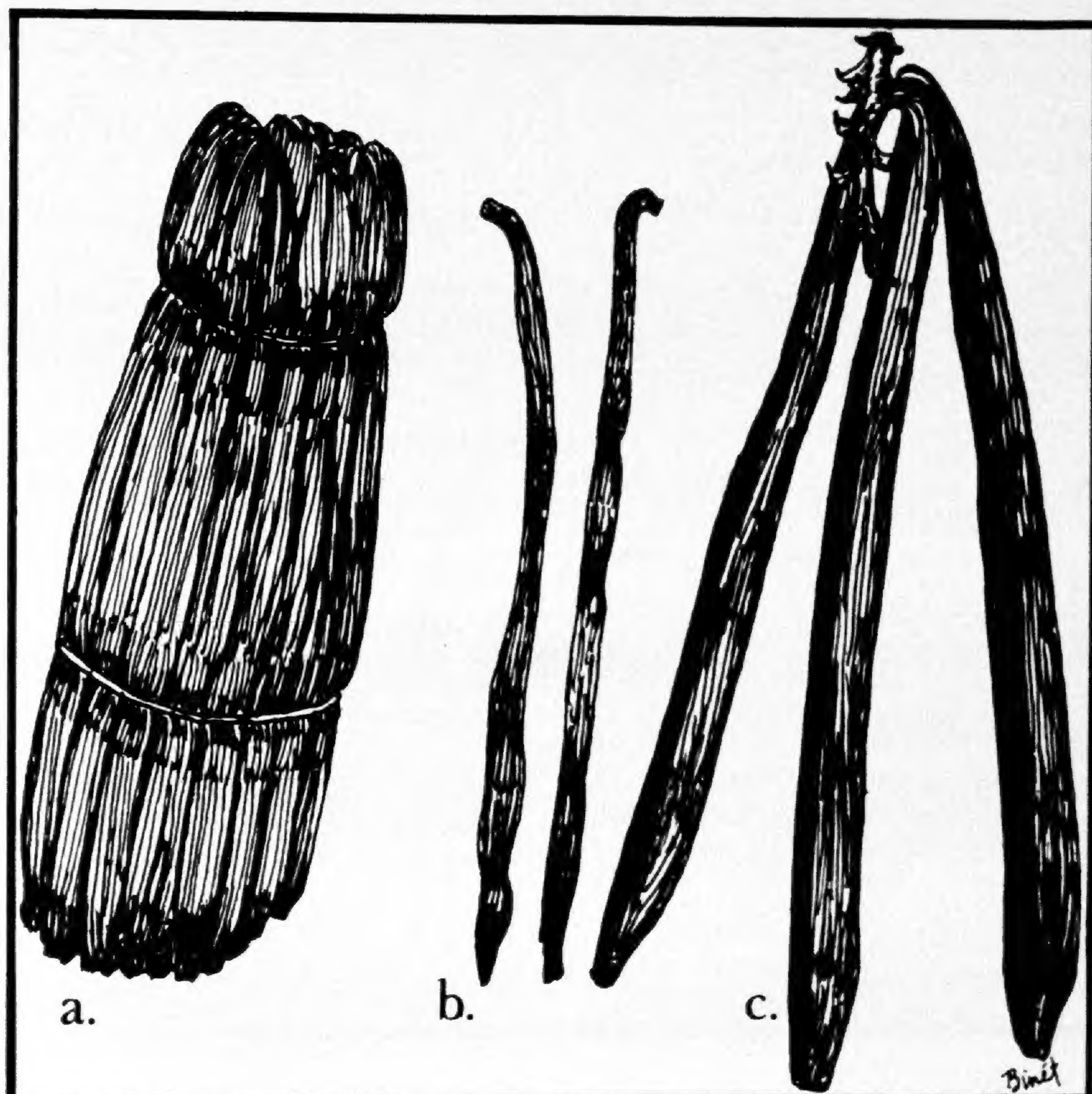
ed from the finely chopped cured beans by hydroalcoholic extraction in much the same way that coffee is percolated. Authentic vanilla extract is the extract of 10 grams of cured unripe beans of *Vanilla planifolia* Andrews or *V. tahitensis* J. W. Moore in 100 milliliters of solution. The solvent is usually 35 percent ethyl alcohol, but it may also contain sucrose, glycerine or propylene glycol. Tenfold vanilla extracts used in the dairy and baking industries are supposed to be ten times more concentrated than the regular extracts. Because of the high price of vanilla beans, some manufacturers market products which are adulterated with foreign botanicals.



*Vanilla plant with two beans.*

**V**ANILLA extract is widely used as a flavoring for ice creams, egg-nogs, chocolate, puddings, cakes, cookies, etc. It seems to be America's favorite flavor: in 1976, 339.3 million gallons of ice cream out of 805.8 million gallons produced was flavored with vanilla.

The natural vanilla extract has a rival in an alcoholic solution of chemically prepared vanillin to which is added coloring matter and



*Mexican vanilla: (a) bundle of cured beans; (b) cured beans, and (c) green beans.*

sugar. The two main sources of the synthetic vanillin, discovered in 1890, were eugenol, derived from oil of cloves, and guaiacol, obtained from coal tar. In more recent years most of the synthetic vanillin has been prepared from lignin, a compound derived from wood pulp in paper manufacture. Extract of vanilla, made from the beans, may be twenty times more expensive than the flavoring of comparable strength made with synthetic vanillin. It, however, possesses a pure, delicate, spicy flavor and peculiar bouquet that cannot be duplicated exactly by the synthetic product. This helps to maintain the demand for natural vanilla against its substitutes.

In the United States the Food and Drug Administration standards require that the label read "Imitation Vanilla" if the product contains any synthetic ingredients. If the label

states "Vanilla Extract" the product must be derived from vanilla beans.

Vanilla is now grown commercially in a number of tropical countries with high rainfall, though a dry season is desirable for the best ripening of the pods. The plants are propagated by stem cuttings, and support of them is usually provided by planting small trees of various kinds up which they can grow.

Today, the Malagasy Republic (Madagascar) grows about 80 percent of the world's crop of vanilla beans. The remaining production comes from Mexico, Tahiti, Reunion, the Seychelles, Indonesia and other countries. In 1974, the Malagasy Republic produced 2.8 million pounds of vanilla beans.

At the Los Angeles State and County Arboretum, vanilla plants can be seen in the Orchid House and the Tropical Greenhouse.



**LOS ANGELES STATE AND  
COUNTY ARBORETUM, Arcadia**

**SEPTEMBER 18 — 2 p.m.**

Sunday Afternoon Talk  
"Water Conservation Through Good  
Watering Habits"  
Ken Montgomery, biologist

**OCTOBER 2 — 2 p.m.**

Sunday Afternoon Talk  
"Growing Bulbs in Containers"  
Tim Lorman, staff horticulturist

**OCTOBER 8-9 — 9 a.m. to 5 p.m.**

Bonsai Show  
Presented by Akebono Bonsai Society

**OCTOBER 16 — 10 a.m.**

Sunday Morning Walk  
"Prehistoric & Jungle Garden"  
Ken Montgomery, biologist

**OCTOBER 22-23 — 9 a.m. to 5 p.m.**

Art Show  
Presented by Mid Valley Arts League

**OCTOBER 23 — 2 p.m.**

Sunday Afternoon Talk  
"Vegetable Gardening"  
Ron Call, education specialist

**NOVEMBER 6 — 2 p.m.**

Sunday Afternoon Talk  
"Flower Variations in Orchid Species"  
Dr. David Deardorff, botanist

**CALENDAR**

**SEPTEMBER, OCTOBER, NOVEMBER**

**NOVEMBER 5-6 — Sat. 12 to 5 p.m.**

**Sun. 9 a.m. to 5 p.m.**

Rose and Horticultural Show  
Presented by San Gabriel Valley Rose  
and Horticultural Society

**NOVEMBER 12-13 — 9 a.m. to 5 p.m.**

Chrysanthemum Show  
Presented by Pasadena Horticultural  
Society

**NOVEMBER 19-20 — 9 a.m. to 5 p.m.**

Novice Bonsai Exhibit  
Presented by Santa Anita Bonsai  
Society

**DESCANSO GARDENS, La Canada**

**SEPTEMBER 24-25 — 9 a.m. to 5 p.m.**

Bonsai Show  
Presented by Descanso Bonsai Society

**OCTOBER 29-30 — 9 a.m. to 5 p.m.**

Chrysanthemum Show  
Presented by Glendale  
Chrysanthemum Society

**NOVEMBER 20 — 2 p.m.**

Sunday Afternoon Talk  
"Grafting"  
George Lewis, superintendent

**SOUTH COAST BOTANIC  
GARDEN, Palos Verdes Peninsula**

**SEPTEMBER 25 — 10 a.m.**

Sunday Morning Walk  
"Aquatic Section"  
Ed Hartnagel, assistant superintendent

**OCTOBER 23 — 2 p.m.**

Sunday Afternoon Talk  
"Vegetable Gardening"  
Jeffrey Hook, education assistant

**NOVEMBER 6 — 10 a.m.**

Sunday Morning Walk  
"Fall Flowering Plants"  
Jeffrey Hook, education assistant

**NOVEMBER 20 — 2 p.m.**

Sunday Afternoon Talk  
"Outdoor Container Gardening"  
Ed Hartnagel, assistant superintendent

**American Horticultural  
Society Congress**

**T**HE AMERICAN HORTICULTURAL SOCIETY will hold its 32nd Annual Congress in Pasadena, California, October 25-29, 1977. The classic Huntington Sheraton Hotel was selected to serve as headquarters because of its many gardens and garden atmosphere as well as its accommodations for various meetings, seminars, lunches, and banquets in its open air Horseshoe Gardens, Viennese, Georgian, and other public rooms.

Hosts for the Annual Congress are the Los Angeles State and County Arboretum and the California Arboretum Foundation. Francis Ching, Arboreta and Botanic Gardens director and a member of the

AHS Board of Directors, agreed to serve as chairman for the Congress at the invitation of Dr. Henry M. Cathey, AHS President. Dr. Cathey will be taking an active part in the Congress presenting a fascinating slide show on indoor gardening and will preside at the Annual Awards Banquet, the President's Banquet and at the presentation of the Liberty Hyde Bailey Medal to one of America's top horticulturists.

The program for the Congress reflects the theme of "Plants and People," which will be expressed in plant talks and tours. The opening address will be presented by Francis Ching on the topic of "The Arboretum Is For People." Other major talks will feature a presentation of California flora by the noted landscape architect of Disneyland and

Disney World, Bill Evans, and a talk by Dr. Mildred Mathias on "Exploring the Plant World After Retirement." In addition, seventeen leading horticulturists will present programs on bromeliads, ferns, proteas, begonias, cycads, cacti and succulents, and California natives. Other presentations include new indoor plants, indoor gardening, the all-American selections, horticultural nomenclature, rhododendrons, plant photography, and Northwest horticulture. Besides visiting private homes and gardens in the Pasadena and surrounding area, tours have been arranged to the botanic gardens at the Huntington Library, Los Angeles State and County Arboretum, Descanso Gardens, South Coast Botanic Garden, and to Sunnyslope Nursery.